

FORM-PTO-1390
(Rev. 12-29-99)

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

ATTORNEY'S DOCKET NUMBER

027650-908

U.S. APPLICATION NO. (If known, see 37 C.F.R. 1.5)

Unassigned 09/700840

**TRANSMITTAL LETTER TO THE UNITED STATES
DESIGNATED/ELECTED OFFICE (DO/EO/US)
CONCERNING A FILING UNDER 35 U.S.C. 371**

INTERNATIONAL APPLICATION NO.
PCT/SE99/00843INTERNATIONAL FILING DATE
18 May 1999 (18.05.99)PRIORITY DATE CLAIMED
22 May 1998 (22.05.98)

TITLE OF INVENTION

A PACKAGING MATERIAL AND PACKAGES PRODUCED FROM THE MATERIAL FOR LIGHT-SENSITIVE PRODUCTS

APPLICANT(S) FOR DO/EO/US

BERGHOLTZ, Lars; KLINT, Lotta

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. This is an express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and the PCT Articles 22 and 39(1).
4. A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. A copy of the International Application as filed (35 U.S.C. 371(c)(2))
 - a. is transmitted herewith (required only if not transmitted by the International Bureau).
 - b. has been transmitted by the International Bureau.
 - c. is not required, as the application was filed in the United States Receiving Office (RO/US)
6. A translation of the International Application into English (35 U.S.C. 371(c)(2)).
7. Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
 - a. are transmitted herewith (required only if not transmitted by the International Bureau).
 - b. have been transmitted by the International Bureau.
 - c. have not been made; however, the time limit for making such amendments has NOT expired.
 - d. have not been made and will not be made.
8. A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
10. A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 11. to 16. below concern other document(s) or information included:

11. An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. A **FIRST** preliminary amendment.
 - A **SECOND** or **SUBSEQUENT** preliminary amendment.
14. A substitute specification.
15. A change of power of attorney and/or address letter.
16. Other items or information:

Unexecuted Declaration; Publ. Appln. No. WO 99/61245; PCT Forms ISA/210, IPEA/401, IPEA/408, Response to Written Opinion dated 10 May 2000 submitting new set of claims 1-8.

SOCNOCart/PDU 21 NOV 2000

U.S. APPLICATION NO. (If known, see 37 C.F.R. 1.50) Unassigned	INTERNATIONAL APPLICATION NO. PCT/SE99/00843	ATTORNEY'S DOCKET NUMBER 027650-908
17. <input checked="" type="checkbox"/> The following fees are submitted:	CALCULATIONS	
Basic National Fee (37 CFR 1.492(a)(1)-(5)):		PTO USE ONLY
Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO \$1,000.00 (960)		
International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO \$860.00 (970)		
International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO \$710.00 (958)		
International preliminary examination fee paid to USPTO (37 CFR 1.482) but all claims did not satisfy provisions of PCT Article 33(1)-(4) \$690.00 (956)		
International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(1)-(4) \$100.00 (962)		
ENTER APPROPRIATE BASIC FEE AMOUNT =		\$ 1,000.00
Surcharge of \$130.00 (154) for furnishing the oath or declaration later than months from the earliest claimed priority date (37 CFR 1.492(e)).		20 <input type="checkbox"/> 30 <input type="checkbox"/>
Claims	Number Filed	Number Extra
Total Claims	8 -20 =	X\$18.00 (966)
Independent Claims	1 -3 =	X\$80.00 (964)
Multiple dependent claim(s) (if applicable)		+\$270.00 (968)
TOTAL OF ABOVE CALCULATIONS =		\$ 1,000.00
Reduction for 1/2 for filing by small entity, if applicable. Verified Small Entity statement must also be filed. (Note 37 CFR 1.9, 1.27, 1.28).		\$
SUBTOTAL =		\$ 1,000.00
Processing fee of \$130.00 (156) for furnishing the English translation later than months from the earliest claimed priority date (37 CFR 1.492(f)).		20 <input type="checkbox"/> 30 <input type="checkbox"/>
TOTAL NATIONAL FEE =		\$ 1,000.00
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 (581) per property +		\$
TOTAL FEES ENCLOSED =		\$ 1,000.00
		Amount to be: refunded \$
		charged \$
a. <input checked="" type="checkbox"/> A check in the amount of \$ 1,000.00 to cover the above fees is enclosed.		
b. <input type="checkbox"/> Please charge my Deposit Account No. 02-4800 in the amount of \$ to cover the above fees. A duplicate copy of this sheet is enclosed.		
c. <input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 02-4800. A duplicate copy of this sheet is enclosed.		
NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.		
SEND ALL CORRESPONDENCE TO:		
<p>Robert S. Swecker BURNS, DOANE, SWECKER & MATHIS, L.L.P. P.O. Box 1404 Alexandria, Virginia 22313-1404 (703) 836-6620</p>		
 SIGNATURE		
<u>Robert S. Swecker</u> NAME		
<u>19,885</u> REGISTRATION NUMBER		
Date: November 21, 2000		

09/700840

532 Rec'd PCT/TTO 21 NOV 2000

PATENT
Attorney Docket 027650-908

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application Of

LARS BERGHOLTZ, et al. : Group Art Unit: Unassigned

Serial No. UNASSIGNED :

Filed: November 21, 2000 :

For: A PACKAGING MATERIAL AND
PACKAGES PRODUCED FROM THE
MATERIAL FOR LIGHT-SENSITIVE
PRODUCTS :

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Prior to examination, please amend the above-identified application as follows:

IN THE CLAIMS:

Claim 3, line 1, delete "any of the preceding Claims", and insert --Claim 1--.

Claim 5, line 1, delete "any of the preceding Claims", and insert --Claim 1--.

Claim 7, line 1, delete "any of Claims 5-6", and insert --Claim 5--.

Claim 8, line 3, delete "any of Claims 1 to", and insert --Claim 1--;

line 2, delete "7".

REMARKS

The above amendments have been made to remove the multiple dependencies in the claims.

Early and favorable action in connection with this application is respectfully requested.

Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, L.L.P.

By _____


Robert S. Swecker
Registration No. 19,885

Post Office Box 1404
Alexandria, VA 22313-1404
Telephone: (703) 836-6620

Date: November 21, 2000

A PACKAGING MATERIAL AND PACKAGES PRODUCED FROM THE MATERIAL FOR LIGHT-SENSITIVE PRODUCTS

TECHNICAL FIELD

5 The present invention relates to a packaging material including layers of plastic permanently united with one another and of which at least one layer includes, for the purpose of elevating light-barrier properties, distributed particles of carbon black. The present invention also relates to a package produced from the packaging material for light-sensitive products.

10

BACKGROUND ART

Both packaging material and packages of the type described above are known in the art. For example, there occur on the market bottles which are produced by a combined extrusion/blow moulding operation of such triple-layer material. The material in these bottles has an interjacent layer of HDPE with admixed particles of carbon black and outer layers of HDPE on both sides of the interjacent layer.

The prior art bottles are employed, int. al. for transporting so-called UHT milk, i.e. milk which, for the purpose of extending its shelf life, has been subjected to a heat treatment at approx. 135-150°C during approx. 1-2 seconds for reducing or eliminating the number of harmful micro-organisms occurring in the milk.

Since milk is a very light-sensitive product which does not stand lengthy exposure to light, in particular within the ultra violet wavelength range without being damaged, it is important that the milk is stored in its package in such a manner that it is not unnecessarily exposed to ultra violet radiation from its ambient surroundings.

Plastic layers consisting exclusively of HDPE are almost totally devoid of barrier properties against light, in particular ultra violet light, and consequently do not alone afford the light protection which is necessary in order for the milk to be able to be stored with the desired extended shelf life. In order to make the long-term storage of milk possible in the prior art bottles, particles of a light-absorbing material, normally carbon black, are therefore incorporated in the interjacent layer of the packaging material, such particles efficiently absorbing, and thereby preventing impinging light

from the outer ambient surroundings of the bottle from penetrating through the wall material of the bottle and reaching the packed milk.

However, particles of carbon black in the large quantities that are employed in the prior art packaging material make the interjacent layer 5 extremely blackened, which could readily be seen through the outer HDPE layers of the bottle and give the bottle an unappealing black appearance if the interjacent layer were not concealed. In order to conceal the thus blackened interjacent layer, the outer HDPE layers of the bottle are therefore provided with a white colouring pigment of titanium dioxide, TiO_2 , in a sufficient quantity to conceal the black interjacent layer beneath and thereby 10 impart to the bottle a more consumer-attractive white appearance.

However, the problem inherent in the prior art triple-layer material is that, as was mentioned above, it requires relatively large quantities of the blackening particles of carbon black in the interjacent layer in order to attain 15 the requisite light barrier properties, at the same time as it also requires correspondingly large quantities of white pigment (TiO_2) in the outer layer for concealing the undesirable blackening caused by the particles. This entails unnecessary, but unavoidable, increased material consumption and thereby increased material costs for producing the material.

Another drawback which is related to the unnecessarily large 20 quantity of carbon black particles is that the waste material which occurs in the bottle producing process cannot directly be recycled into the process because of the extreme blackening, but must first be whitened by the addition of white pigment (TiO_2) or other white colouring matter in order to 25 be able to be recycled and reused in the process. Such a handling involves extra material consumption and increased material costs, which often renders recycling and reuse unprofitable.

OBJECT OF THE INVENTION

The task forming the basis of the present invention is therefore to 30 provide a packaging material of the type described by way of introduction which neither requires large quantities of carbon black to achieve superior light barrier properties nor large quantities of white pigment (TiO_2) or other white colouring matter in order to impart to the packaging material a white 35 appearance.

SOLUTION

This task is solved according to the present invention by means of a packaging material possessing the characterizing feature as set forth in appended Claim 1. Improvements and expedient embodiments of the 5 present invention have further been given the characterizing features as set forth in the appended subclaims.

SUMMARY OF THE INVENTION

The present invention is the result of the surprising discovery that a 10 film or a thin panel of mineral-filled plastic obtains a synergistically increased light barrier if light-absorbing particles of carbon black are added to it. By experiments, it has namely been possible to confirm that the inherent light barrier properties of the mineral-filled plastic film, which per se are insufficient to prevent undesired transmission of ultra violet rays, are 15 considerably improved by an addition of but a very slight quantity of carbon black, which in turn entails only a slight blackening in comparison with the prior art technology. Visually, this may be expressed such that the interjacent layer in the packaging material according to the present invention will only be coloured grey, while the interjacent layer in the prior 20 art packaging material is totally black.

The mechanism behind the synergistic light barrier effect which is surprisingly attained using the present invention has not been totally clarified, but could possibly be explained by the fact that the light-reflecting mineral particles extend the ray paths of the impinging light in the 25 interjacent layer because of reflection against the particles, and that the probability that the light would collide with and be absorbed by the light-absorbing particles thereby increases. However, this explanation should not be seen as the only conceivable one, but is rather to be considered as a working hypothesis for describing the present invention.

30 The material in the mineral-filled interjacent layer comprises a plastic compound and particles embedded in the compound consisting, on the one hand, of a light-reflecting material and, on the other hand, a light-absorbing material.

35 The actual basic compound may consist of any suitable plastic whatever, such as polyolefin, polyester, polyamide etc., but is preferably a

polyolefin plastic which is already employed in commercial packages of bottle type.

Examples of such polyolefin plastics are polyethylene, such as high density polyethylene (HDPE), and polypropylene (PP) of both homo- and 5 copolymer type, such as a copolymer of ethylene and propylene with a melt index between 0.5 and 5 according to ASTM (2.16 kg; 230°C) which is an already well-known and well-established copolymer in packaging contexts.

As the light-reflecting mineral filling in the interjacent layer, use may 10 be made of any suitable particles whatever of montmorillonite, dolomite, calciumcarbonate, chalk, talcum, mica, clay etc., but use is preferably made of particles of dolomite, which is both readily available and moreover approved for use in packages for foods.

One example of a mineral-filled plastic compound for the interjacent 15 layer in the packaging material according to the present invention is that which is described in, for example, EP O 353 991, EP O 353 498, EP O 494 594, EP O 494 0595, EP O 512 364, EP (94105439.7), EP (95926568.7) or EP (96935679.9). According to these specifications, the mineral-filled plastic compound preferably includes a copolymer of ethylene and propylene with a melt index between 0.5 and 5 according to ASTM (2.16 kg; 230°C) and 20 particles of chalk admixed in the plastic compound in a quantity of between 50 and 80% of the total weight of the mineral-filled compound.

As light-absorbing material in the interjacent layer in the packaging 25 material according to the present invention, use is made, as has already been mentioned, of particles of carbon black which, already in very small quantities, gives a synergistic effect in combination with the above-described mineral-filled plastic compound. In order to attain the desired light barrier, as small quantities as 0.04-1% of the total weight of the interjacent layer are sufficient, which effectively prevents the transmission of light, in particular ultra violet light, at the same time as the particles discolour (blacken) the 30 interjacent layer to only an insignificant degree.

In one preferred embodiment of the packaging material according to 35 the present invention, the interjacent layer thus consists of a polyolefine plastic compound containing between 3 and 80% filler particles, such as montmorillonite, dolomite, CaCO₃, talcum, mica, clay etc. and between 0.04 and 1% light-absorbing particles of carbon black.

The outer plastic layer(s) in the packaging material according to the present invention can, but need not, consist of the same plastic compound as that of the interjacent layer. However, use is preferably made of the same plastic compound in all layers included in the material, since such a homogeneous material enjoys major advantages compared with a corresponding heterogeneous material in which different plastic compounds are employed.

A homogeneous material with the same plastic compound in all layers of the material can readily be produced by a conventional extrusion process using existing process equipment and requires no binders (adhesives) or other agents for permanently uniting the co-extruded material layers to one another.

BRIEF DESCRIPTION OF THE ACCOMPANYING DRAWING

The present invention will now be described in greater detail hereinbelow, with reference to the accompanying Drawing in which:

The Figure shows a schematic cross section of a particularly preferred packaging material for a package of bottle type according to the present invention.

20

DESCRIPTION OF PREFERRED EMBODIMENT

The packaging material carrying the generic reference numeral 10 in the Figure is of a triple layer structure consisting of an interjacent layer 11 and outer layers 12 and 13 on both sides of the interjacent layer 11.

25

The interjacent layer 11 consists of a plastic compound 11a and, substantially uniformly distributed in the compound, mineral filler particles 11b (unfilled squares in the Figure) and particles 11c of carbon black (black points in the Figure) which are preferably randomly distributed in the compound 11a between the mineral particles 11b.

30

The compound 11a in the interjacent layer 11 may, as has been mentioned previously, consist of basically any type whatever of plastic occurring in packaging contexts, but is preferably a plastic of the polyolefin type.

35

The mineral particles 11b in the interjacent layer 11 may also be any suitable type of particle whatever, e.g. montmorillonite, dolomite, calcium carbonate, talcum, mica, volastonite, clay etc., but in the illustrated example

consist of dolomite which already occurs in known packaging materials together with a polyolefine plastic as described in the immediately preceding paragraph.

The quantity mineral particles may vary within a very broad range
5 from approx 3 and up to approx. 80% of the total weight of the compound. Preferably, the quantity of chalk in the interjacent layer 11 amounts to approx. 65% of the total weight of the compound. This preferred quantity imparts to the interjacent layer 11 good rigidity and thereby makes for the
10 production of configurationally stable, easily handled bottles from the packaging material 10 according to the present invention.

As was mentioned previously, an interjacent layer of plastic compound and mineral particles distributed in the compound per se possesses a certain light barrier property which, granted, is insufficient to wholly prevent the transmission of light, in particular ultra violet light, but
15 which is utilised most advantageously according to the present invention in order to attain the desired total barrier principally against the ultra violet light.

For the above-mentioned purpose, the interjacent layer 11 thus includes light-absorbing particles 11c of carbon black which, together with
20 the simultaneously present mineral particles 11b, has a synergistically elevating light barrier effect and which, even in very small quantities realises an efficient barrier for totally preventing the transmission of ultra violet light through the interjacent layer 11.

The quantity of carbon black in the interjacent layer 11 lies generally
25 within the range of 0.04-1% of the total weight of the interjacent layer, which is sufficiently large to attain the above-mentioned synergy effect, but at the same time sufficiently small so as not to overly blacken the interjacent layer.

The two outer layers 12, 13 on both sides of the interjacent layer 11 comprise, like the interjacent layer 11, a compound of plastic which in principle may be any plastic whatever occurring in packaging contexts.
30 Furthermore, the outer layers 12 and 13 may have mutually different compounds, but preferably have compounds of the same plastic which, more preferably still, is the same plastic as the plastic in the interjacent layer 11. In the illustrated embodiment, the two outer layers 12, 13 thus each
35 comprise a compound of a polyolefine plastic, such as a high density

polyethylene and copolymer of ethylene and propylene with a melt index between 0.5 and 5 according to ASTM (2.16 kg; 230°C).

Since the light-absorbing carbon black particles 11c in the interjacent layer 11 give the interjacent layer a certain grey tone which may be visible through the two outer layers 12 and 13, it may be appropriate (and in certain cases desirable) to conceal the interjacent layer 11 as far as is possible. To this end, white pigment is therefore suitably incorporated in at least that layer which is to form the outside of a package or bottle produced from the packaging material 10. Preferably, white pigment is incorporated in the interjacent layer as well. An advantageous white pigment is titanium dioxide (TiO_2).

Since the quantity of carbon black in the interjacent layer 11 is very small and the interjacent layer 11 will, as a result, be only slightly blackened, it will therefore be sufficient to employ very slight quantities of white pigment (TiO_2) in the one or both outer layers 12, 13 in order to conceal the interjacent layer 11. Suitable quantities of white pigment may vary up to approx. 5% of the total weight of the outer layer and of the interjacent layer, respectively, depending upon the pertinent quantity of carbon black in the interjacent layer 11.

A bottle produced from the above-described packaging material 10 may be produced by a combined extrusion and blow moulding operation. This production technique is well-known to a person skilled in the art and is described, for example, in published Swedish Patent Application No. 9503537-4 which, in relevant parts, is hereby included as a reference. For further details concerning this production technique, reference is therefore made to the above Swedish Patent Application.

Bottles produced from the packaging material 10 according to the present invention using the above-described method, by combined extrusion and blow moulding, may advantageously be employed for light-sensitive products in general, but have proved to be particularly advantageous in connection with so-called UHT milk, which may be stored for lengthy periods of up to several weeks in the bottles without being damaged as a result of the effects of light. Moreover, the bottles are light in weight and easy to handle, at the same time as displaying a consumer-attractive white appearance, despite the presence of carbon black in the packaging material.

It will thus have been apparent from the foregoing description that the present invention, with but very simple means, attains its object, at the same time as making possible the production of a packaging material and packages, respectively, with lower material consumption and therefore 5 lower material costs than those involved in the prior art technology.

While the packaging material and packages of bottle type produced from the packaging material have been described with particular reference to the illustrated embodiment shown in the Drawing, the present invention is, however, not restricted exclusively to this embodiment. It will be obvious 10 to a person skilled in the art that a number of different alterations and modifications of individual details are possible and self-evident without, to that end, departing from the inventive concept as this is defined in the appended Claims.

Replacement sheets

4434

Claims

5

1. A packaging material of single multi-layer type including at least one layer (11) of plastic which, for light barrier elevating purposes, includes particles (11c) of carbon black, **characterized in that** the layer (11) containing carbon black also includes mineral particles (11b) substantially uniformly distributed in the compound (11a) of the layer. In a quantity between approx. 3 and 80% of the total weight of the layer.

10

2. The packaging material as claimed in Claim 1, **characterized in that** the compound (11a) in the mineral-filled layer (11) containing carbon black consists of a plastic of polyolefin type.

15

3. The packaging material as claimed in any of the preceding Claims, **characterized in that** the compound (11a) in the mineral-filled layer (11) containing carbon black consists of a high density polyethylene or a copolymer of ethylene and propylene with a melt index between 0.5 and 5 according to ASTM (2.16 kg; 230°C).

20

4. The packaging material as claimed in Claim 3, **characterized in that** the quantity of carbon black in the mineral-filled layer (11) is between 0.04 and 1% of the total weight of the compound (11a).

25

5. The packaging material as claimed in any of the preceding Claims, **characterized in that** the mineral-filled layer (11) containing carbon black is surrounded by outer layers (12 and 13) of plastic on both sides of the layer (11), said outer layers (12 and 13) being permanently united to the layer (11) without interjacent binder or adhesive.

30

6. The packaging material as claimed in Claim 5, **characterized in that** the two outer layers (12 and 13) consist of the same plastic as the plastic in the interjacent layer (11).

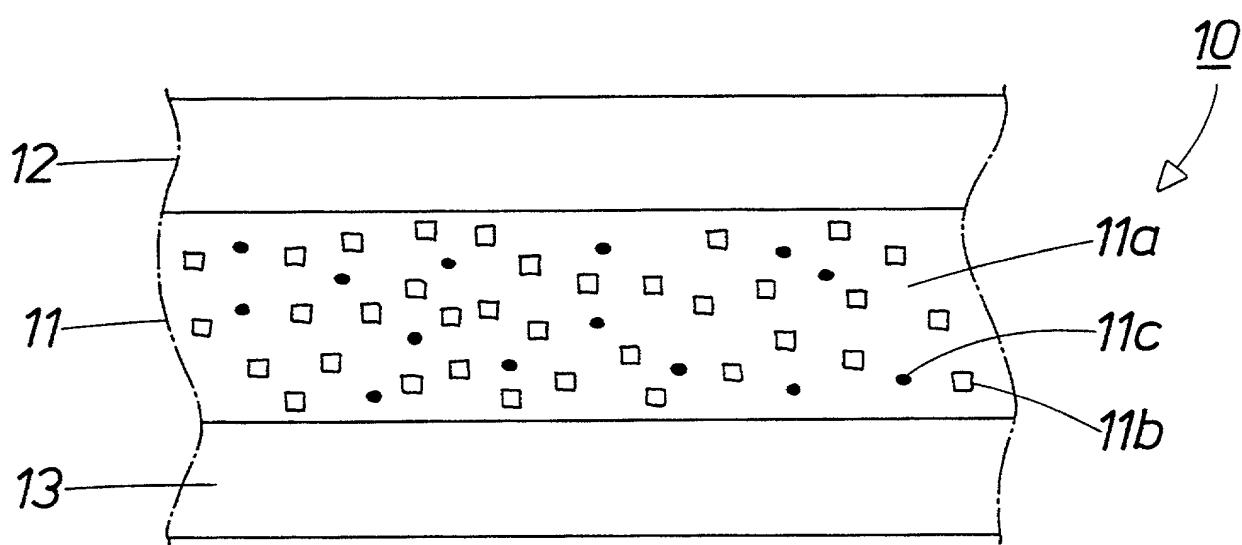
35

7. The packaging material as claimed in any of Claims 5-6,
characterized in that of the two outer plastic layers (12 and 13) one includes
a white pigment or other white colouring agent so as to conceal the
interjacent layer (11) containing carbon black, at least from one direction.

5

8. A package, preferably a bottle, for light-sensitive products,
characterized in that it is produced by a combined extrusion and blow
moulding operation of a packaging material as claimed in any of Claims 1 to
7.

1/1



TP 1281-05

COMBINED DECLARATION FOR PATENT APPLICATION AND POWER OF ATTORNEY (Includes Reference to Provisional and International (PCT) Applications)	Attorney's Docket No.
---	-----------------------

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name;
I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

A PACKAGING MATERIAL AND PACKAGES PRODUCED FROM THE MATERIAL FOR LIGHT-SENSITIVE PRODUCTS

The specification of which (check only one item below):

is attached hereto.

was filed as United States Patent Application
Number _____
on _____
and was amended on _____ (if applicable).

was filed as International (PCT) Application
Number PCT/SE99/00843
on 18 May, 1999 (18.05.99)
and was amended on _____ (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose to the U.S. Patent and Trademark Office all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, §§ 119 (a)-(e) of any foreign application(s) for patent or inventor's certificate or of any International (PCT) Application(s) designating at least one country other than the United States of America listed below and have also identified below any foreign application(s) for patent or inventor's certificate or any PCT International (PCT) Application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application(s) of which priority is claimed:

PRIOR FOREIGN/PCT APPLICATION(S) AND ANY PRIORITY CLAIMS UNDER 35 U.S.C. §119:

COUNTRY (if PCT, indicate "PCT")	APPLICATION NUMBER	DATE OF FILING (day, month, year)	PRIORITY CLAIMED UNDER 35 U.S.C. §119
Sweden	9801809-6	22 May 1998 (22.05.98)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
			<input type="checkbox"/> Yes <input type="checkbox"/> No
			<input type="checkbox"/> Yes <input type="checkbox"/> No
			<input type="checkbox"/> Yes <input type="checkbox"/> No
			<input type="checkbox"/> Yes <input type="checkbox"/> No

I hereby claim the benefit under Title 35, United States Code § 119(e) of any United States provisional application(s) listed below.

(APPLICATION NUMBER)

(FILING DATE)

(APPLICATION NUMBER)

(FILING DATE)

COMBINED DECLARATION FOR PATENT APPLICATION AND POWER OF ATTORNEY (CONT'D)
(Includes Reference to Provisional and International (PCT) Applications)

Attorney's Docket
No.

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States applications(s) or International (PCT) Application(s) designating the United States of America that is/are listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in that/those prior application(s) in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose to the U.S. Patent and Trademark Office all information known to me to be material to the patentability as defined in Title 37, Code of Federal Regulations § 1.56, which became available between the filing date of the prior application(s) and the national or international filing date of this application:

PRIOR U.S. APPLICATIONS OR INTERNATIONAL (PCT) APPLICATIONS DESIGNATING THE U.S. FOR BENEFIT UNDER 35 U.S.C. § 120:

U.S. APPLICATIONS		STATUS (check one)		
U.S. APPLICATION NUMBER	U.S. FILING DATE	PATENTED	PENDING	ABANDONED
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PCT APPLICATIONS DESIGNATING THE U.S.				
PCT APPLICATION NO.	PCT FILING DATE	U.S. APPLICATION NUMBERS ASSIGNED (if any)		
PCT/SE99/00843	18.05.99	<u>Unassigned</u>	X	

I hereby appoint the following attorneys and agent(s) to prosecute said application and to transact all business in the U.S. Patent and Trademark Office connected therewith and to file, prosecute and to transact all business in connection with international applications directed to said invention:

William L. Mathis	<u>17,337</u>
Robert S. Swecker	<u>19,885</u>
Platon N. Mandros	<u>22,124</u>
Benton S. Duffett, Jr.	<u>22,030</u>
Norman H. Stepno	<u>22,716</u>
Ronald L. Grudziecki	<u>24,970</u>
Frederick G. Michaud, Jr.	<u>26,003</u>
Alan E. Kopecki	<u>25,813</u>
Regis E. Slutter	<u>26,999</u>
Samuel C. Miller, III	<u>27,360</u>
Robert G. Mukai	<u>28,531</u>
George A. Hovanec, Jr.	<u>28,223</u>
James A. LaBarre	<u>28,632</u>

E. Joseph Gess	28,510
R. Danny Huntington	27,903
Eric H. Weisblatt	30,505
James W. Peterson	26,057
Teresa Stanek Rea	30,427
Robert E. Krebs	25,885
William C. Rowland	30,888
T. Gene Dillahunty	25,423
Patrick C. Keane	32,858
Bruce J. Bogggs, Jr.	32,344
William H. Benz	25,592
Peter K. Skiff	31,917
Richard J. McGrath	29,195
Matthew L. Schneider	32,814

Gerald F. Swiss	30,113
Michael J. Ure	33,089
Charles F. Wieland III	33,096
Bruce T. Wieder	33,815
Todd R. Walters	34,040
Ronni S. Jillions	31,979
Harold R. Brown III	36,341
Allen R. Baum	36,086
Steven M. du Bois	35,023
Brian P. O'Shaughnessy	32,747
Kenneth B. Leffler	36,075
Fred W. Hathaway	32,236



21839

Address all correspondence to:

Mr. Robert S. Swecker
BURNS, DOANE, SWECKER & MATHIS, L.L.P.
P.O. Box 1404
Alexandria, Virginia 22313-1404

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

COMBINED DECLARATION FOR PATENT APPLICATION AND POWER OF ATTORNEY (CONT'D)
 (Includes Reference to Provisional and International (PCT) Applications)

Attorney's Docket No.

FULL NAME OF SOLE OR FIRST INVENTOR BERGHOFT, Lars	SIGNATURE <i>Lars Berghoft</i>	DATE 27 October, 2000
RESIDENCE (CITY & STATE/COUNTRY) Höganäs, Sweden <i>SE</i>	Sweden	
POST OFFICE ADDRESS (HOME ADDRESS) Rapsvägen 38, S-263 54 Höganäs, Sweden		
FULL NAME OF SECOND JOINT INVENTOR, IF ANY KLINT, Lotta	SIGNATURE <i>Lotta Klint</i>	DATE 30 October, 2000
RESIDENCE (CITY & STATE/COUNTRY) Löddeköpinge, Sweden <i>SE</i>	Sweden	
POST OFFICE ADDRESS (HOME ADDRESS) Sportvägen 11, S-249 52 Löddeköpinge, Sweden		
FULL NAME OF THIRD JOINT INVENTOR, IF ANY	SIGNATURE	DATE
RESIDENCE (CITY & STATE/COUNTRY)	CITIZENSHIP	
POST OFFICE ADDRESS (HOME ADDRESS)		
FULL NAME OF FOURTH JOINT INVENTOR, IF ANY	SIGNATURE	DATE
RESIDENCE (CITY & STATE/COUNTRY)	CITIZENSHIP	
POST OFFICE ADDRESS (HOME ADDRESS)		
FULL NAME OF FIFTH JOINT INVENTOR, IF ANY	SIGNATURE	DATE
RESIDENCE (CITY & STATE/COUNTRY)	CITIZENSHIP	
POST OFFICE ADDRESS (HOME ADDRESS)		
FULL NAME OF SIXTH JOINT INVENTOR, IF ANY	SIGNATURE	DATE
RESIDENCE (CITY & STATE/COUNTRY)	CITIZENSHIP	
POST OFFICE ADDRESS (HOME ADDRESS)		
FULL NAME OF SEVENTH JOINT INVENTOR, IF ANY	SIGNATURE	DATE
RESIDENCE (CITY & STATE/COUNTRY)	CITIZENSHIP	
POST OFFICE ADDRESS (HOME ADDRESS)		
FULL NAME OF EIGHTH JOINT INVENTOR, IF ANY	SIGNATURE	DATE
RESIDENCE (CITY & STATE/COUNTRY)	CITIZENSHIP	
POST OFFICE ADDRESS (HOME ADDRESS)		
FULL NAME OF NINTH JOINT INVENTOR, IF ANY	SIGNATURE	DATE
RESIDENCE (CITY & STATE/COUNTRY)	CITIZENSHIP	
POST OFFICE ADDRESS (HOME ADDRESS)		
FULL NAME OF TENTH JOINT INVENTOR, IF ANY	SIGNATURE	DATE
RESIDENCE (CITY & STATE/COUNTRY)	CITIZENSHIP	
POST OFFICE ADDRESS (HOME ADDRESS)		